

What Is Claimed Is:

1. A method for detecting a fault current across one of a piezoelectric actuator of an injector and a high voltage supply lead thereof, comprising the steps of:
 - causing a control device to activate a plurality of switches;
 - in order to control a quantity of a fuel injected, causing the plurality of switches to one of charge and discharge the piezoelectric actuator from a voltage supply to a predefined voltage;
 - monitoring the predefined voltage across at least one of the piezoelectric actuator and the high voltage supply lead in a time period in which the piezoelectric actuator is charged;
 - determining a change in the predefined voltage; and
 - reporting a fault when the change in the predefined voltage exceeds a predefined threshold.
2. The method according to claim 1, further comprising the step of:
 - weighting the fault in accordance with an algorithm.
3. The method according to claim 1, further comprising the step of:
 - shutting off the voltage supply when the predefined threshold is exceeded.
4. The method according to claim 3, wherein:
 - the piezoelectric actuator is discharged so rapidly that no contact hazard arises.
5. The method according to claim 1, further comprising the step of:
 - determining the predefined voltage at a beginning and at an end of an injection pause.
6. The method according to claim 5, wherein:
 - a setpoint voltage specified by the control device corresponds to a first voltage value at the beginning of the injection pause.
7. The method according to claim 1, wherein:
 - in a system with multiple injections, the monitoring of the predefined voltage is performed during all injection pulses.

8. The method according to claim 1, wherein:
the piezoelectric actuator belongs to a set of piezoelectric actuators, and
when the fault occurs, all of the plurality of actuators are at least one of shut off and
discharged.
9. The method according to claim 1, wherein:
a fault diagnosis is designed as a software program.
10. The method according to claim 9, wherein:
the software program is a component of a control program for the piezoelectric
actuator.
11. A device, comprising:
a voltage source;
a program-controlled computer;
at least one switch that is connected in series to the voltage source and in a
piezoelectric actuator; and
a measurement unit that detects a voltage across at least one of the piezoelectric
actuator and a supply lead during an injection pause, wherein:
the program-controlled computer generates a voltage difference from at least
two detected voltage values and compares the voltage difference to a predefined
threshold, and
when a value of the predefined threshold is exceeded, the program-
controlled computer at least one of shuts off the voltage source, discharges the
piezoelectric actuator, and produces a warning signal.